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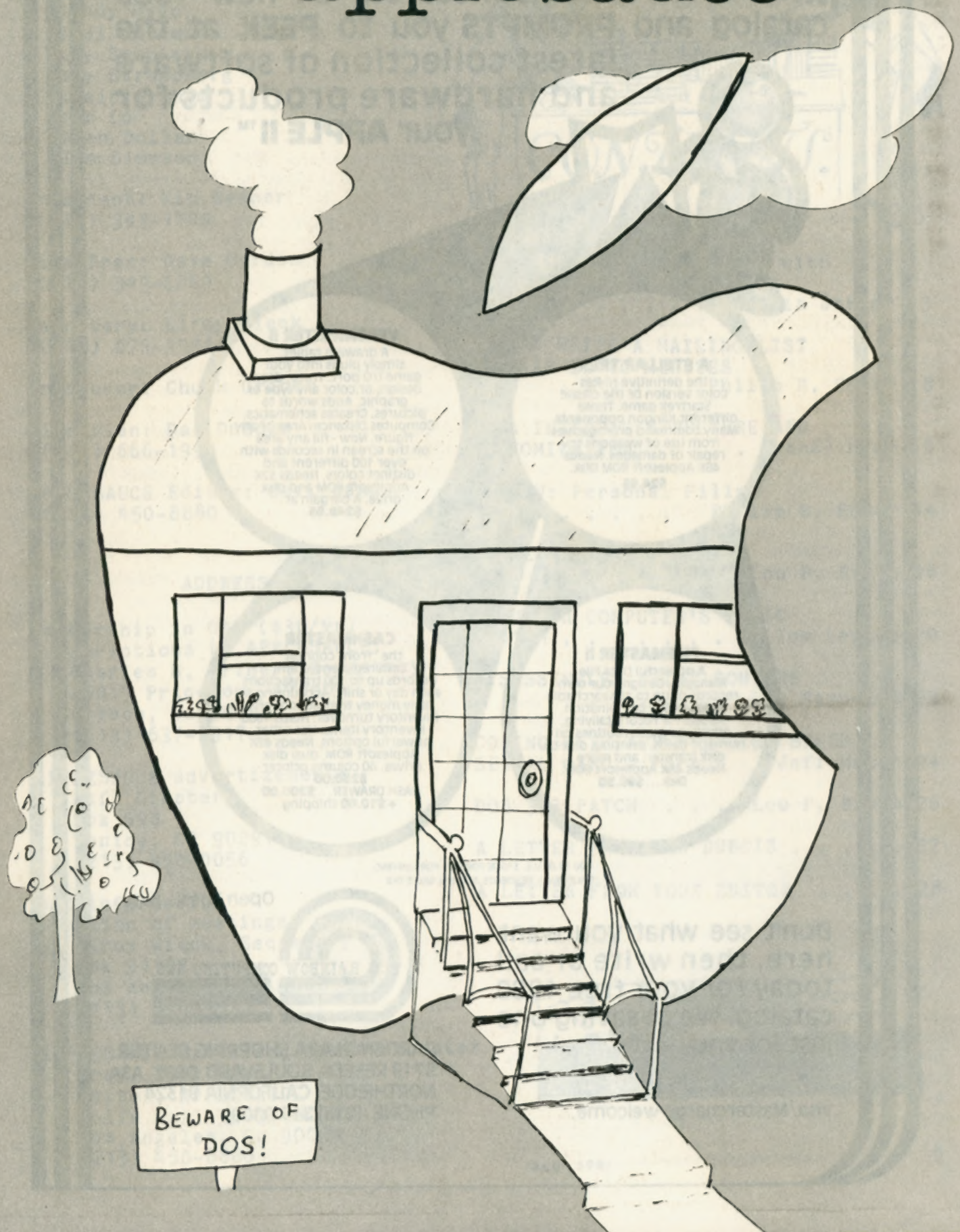

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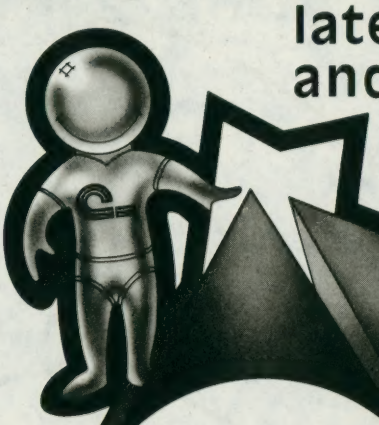

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APPLESAUCE, a general magazine devoted to the APPLE microcomputer, publishes articles, programs, software reviews, hardware reviews, tutorials, notes, news, letters, and even rumors and gossip. It is also the newsletter of the Original Apple Corps.

Authors should send materials to me in, if at all possible, machine readable form, i.e., on diskette or on cassette tape. Common editors, including (but not limited to) Apple PIE, Applewriter, Easywriter, Prose, and Write-On, should be used. The editor you use should allow right justification of output. (Uncommon editors and word processors should be accompanied by documentation.) You should also include a printed copy of your submission. And, of course, please print your name, phone number, and return address on everything you send. Short notes and letters, of course, need not be on diskette or tape. New items can be telephoned in.

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KIP'S COMMENTS

Kip Reiner

The meetings of the Original Apple Corps have been moved to UCLA. The room is large and well suited to the Apple Corps meetings with plenty of seats and video monitors for every section. We hope to interest new members as we are now centrally located in the Los Angeles area. The meeting time is the second Sunday of every month at 12:00 PM in Young Hall room 2224.

We are now offering a PASCAL class to our members. This class is available to members only and there is no charge. We plan to have more classes in the future and we would be interested in knowing what subjects our members would prefer. Please let us hear from you.

Everyone is welcome to attend our monthly meeting. The club frequently has guest speakers discussing various topics on the Apple. An important part of our meeting is a different disk of software each month. This is available to members at a nominal charge for the disk and copying. Membership also includes the "Applesauce" magazine, the International Apple Core "Apple Orchard" magazine and classes on the Apple.

Membership in the Apple Corps is $30.00 yearly and may be obtained at our meetings or by sending a check to:

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I'm hoping to see many new faces at our next meeting.

Kip Reiner
President

EASY or PIE: Experiences with Two Apple Word Processing Systems

Tricia Jordan

Like many others, my first introduction to computers was for word processing. Typing and retyping the early stages of my dissertation proposal had become agony, so, grabbing my computer phobia by the throat, I entered the computer room at UCLA, an event which eventually altered my career plans. I soon mastered the system, and was able to (almost) smile when my dissertation committee suggested needed revisions -- word processing is a godsend to anyone who must work with words. Now I must admit that university computer rooms are fascinating places (see Phil Zimbardo's "The Hacker Papers" in Psychology Today (1980)). In fact, I even tried to change my dissertation topic to "The Sociology of Computer Rooms". However, competition for terminals was fierce, down time a disgrace, and the printers less than elegant. So I entered the world of APPLE.

There are many things you can do with an APPLE which are much more fun than word processing, but the dissertation just wouldn't go away, and then there were lectures to write and quizzes to generate, so I have become quite adept at word processing. Of the many word processing packages on the market for the APPLE, and I thought I would share my experiences with two of them: EasyWriter, by Information Unlimited Software, and APPLE PIE, By Programma International. Both of these packages are generally good, and will get the job done. Both cost about the same, around $100.00. However, there are differences, and the one you choose will depend on the work you need to do, how much time you have to devote to learning the systems (or training someone else).

There are two versions of EasyWriter: the Original version, for use with a standard APPLE monitor, and the Professional version, for use with an 80 column video card. The Original version is the one I will be discussing.

EasyWriter, as its name implies, concentrates on ease of use. It is, in fact, unlike PIE, quite easy to use. It is not at all unreasonable to expect to be able to use it quite well the day you get it. My eight year old son learned the system in only a few sessions, and now delights in turning in "professional looking" homework assignments.

EasyWriter is divided into three sections: the Editor, which allows entry and editing of text files, the Disk Operating System, which stores and recalls files on disk, and the File Printing System, which sends files to the printer.

Upon booting the EasyWriter disk, you automatically enter the Editor, with a display of editing commands. Unfortunately, this display is not accessible later, when you want to do something and have forgotten the command. Then you must refer to the manual.

When in the editor, you can enter and/or revise the text you are working on. If you reach the end of the line in the middle of a word, the word will disappear and reappear on the next line, rather than splitting in the middle, as happens when typing in BASIC. This "wrap around", also in PIE, really makes it much easier to proof read your text. It also makes it unnecessary to type carriage returns. When the text is sent to be printed, the lines are automatically filled, unless you specifically call for a break to a new line. There is no "literal" or "A" mode (as in PIE) in which text is printed as it appears on the screen. This is ideal when you are just entering regular text, but can be akward when entering tables, outlines, or other irregular material. In these cases, it becomes necessary to specifically tell the program where you want things.

Control characters allow you to move around in the file. In most cases, these are quite logically arranged, so that, by holding down the control key, you can move up and down by the line or screenful, or right and left on a line. You can search for occurrences of a word (or part of a word) throughout the file, but cannot automatically replace all occurrences of one word with another. Inserting or deleting characters or lines is easily done, as well as moving blocks of text from one section to another. It is even possible to move a section of text from one file to another (unlike PIE). It is not possible, however, to copy a secton of text to a new location: it is automatically deleted from the original location in the process of moving. Capitalization is quite satisfactorily handled: capitals are entered by typing 'ESC' once to capitalize the following letter, or twice to capitalize all following text until a third 'ESC' toggles the capitals off. Capitals are shown on the screen in inverse videl.

Page formatting is accomplished by embedding commands in the text. A period "." in the first column followed by a single letter and number is interpreted as a command to EasyWriter, and is not printed. Thus ".L65" will set the length of each line at 65 characters from the left margin. With such commands you can set the size of each page, spacing, centering of text, margins, page numbering (at top of page only), set up running headings, set tab stops, pause at the end of each page (for paper insertion), and cause the text to be lined up evenly at both the left and right margins (justification). It is also possible to assign any ASCII character to a key of your choice. This makes it possible to enter 'escape' (useful in talking to some printers) or put a space right where you want it, or to use the characters not available from the APPLE keyboard, such as "]" and "_". Unfortunatelly, only one user defineable character is available at any one time. Since underlining requires both backspacing and printing a special character (_), underlining is not possible with the original EasyWriter. (This problem has been corrected on the 80 column version, as has the need for a "literal" non-formating capacity.)

On certain printers, namely Qume, Diablo, and Spinwriter, the manual claims you can do super- and sub-scripting, bold face printing, and incremental spacing. The latter consists of varying the spacing between letters as well as between words when justifying the right margin. This creates a even, nice looking page. However, things are never as simple as one would hope. My printer is a Spinwriter 5530, and these three features just do not work. The people at Information Unlimited, both courteous and eager to help, couldn't solve the problem, except to suggest I buy the 80 column version (great, if they'll pay or update....). It is annoying, as the variable incremental spacing was a major reason I chose EasyWriter in the first place.

The Disk Operating System stores and recalls files. It is written in FORTH, and is very much faster than APPLE's DOS. This is a clear advantage when working with even medium length files, but does have the drawback of making files dependent on EasyWriter. You cannot create BASIC files with EasyWriter, or transfer EasyWriter text files to other disks. Accessing the Disk system automatically displays the current status of all files on the disk, and lists possible commands. Any destructive commands, like revise, sound a bell and ask for verification before proceeding, a very nice touch.

The File Printing System sends files to the printer. Because there are so many printer systems, you can format EasyWriter specifically for your system, even if you have a custom driver. If you use another system, it is only a matter of seconds to reformat EasyWriter for

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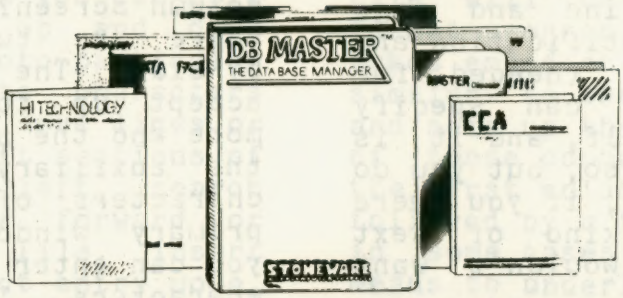

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FEATURES	DB MASTER	OTHER DBMS
FILING SYSTEM:		
Maximum search time to find any record by its primary key	UNDER 3 SECS	
True ISAM file system with multi-field primary keys	YES	
Multiple secondary keys for rapid access (5-7 seconds) to records by any field	YES	
Primary & Secondary keys maintained automatically—no need to rebuild keys after adding records	YES	
Maximum record size (bytes)	1020	
Maximum number of fields/record ..	100	
Handles files with more than one * diskette of data	YES	
Custom disk operating system (DOS) for faster data retrieval and program chaining	YES	
User-designed screen formats	YES	
Up to 9 screen "pages" per record...	YES	
Ten field types, including dollar/cents, phone & social security number, date, etc.	YES	
Automatic data compaction for increased disk storage capacity.	YES	
Wild card, partial string, range and Boolean search capabilities...	YES	
Dynamic prompting (tm) - lists all available functions on screen—no need for quick reference card.	YES	
Password file protection	YES	
Four function calculator mode	YES	
Daily update lists for printout of all records added/edited on any day or range of dates	YES	
REPORT GENERATOR:		
Send reports to screen or printer	YES	
Sort on up to 6 fields at a time	YES	
Column subtotals and totals	YES	
Subtotal and page breaks	YES	
Up to 24 computed fields per report .	YES	
Up to 9 lines of column titles	YES	
Up to 9 lines for each record	YES	
Maximum number of fields per report	100	
Code fields - store short codes, print long descriptions	YES	
Comment lines and footnotes	YES	
Comment fields for printing labels or headers within each record ...	YES	
Summary only reports	YES	

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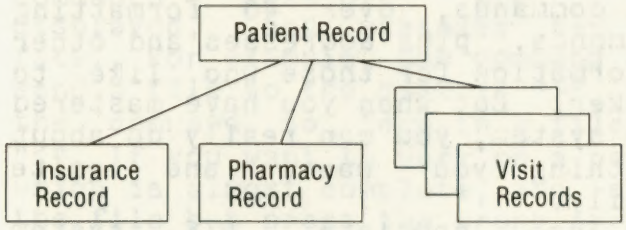

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it, either temporarily, or permanently. When you access the File system, you have the option of setting several formatting options, such as spacing, line and page length, indent, justification and automatic line feed (needed for some printers). You can specify them in the file itself, and it is usually safer to do so, but you do not have to. In fact, if you were running only one kind of text format, you probably wouldn't want to.

In sum, EasyWriter is a good system for routine use-- easy to learn and easy to use. It is, however, somewhat limited with non-standard documents, and, as mentioned, underlining is not possible.

APPLE PIE on the other hand, is extremely versatile, and can handle most non-standard jobs. The price you pay for this versatility is,of course, complexity. Don't expect to really use PIE until you have invested some hours of study and made a good number of mistakes unless you are quite familiar with other complete systems such as TECO, SOS, or WYLBUR. The manual itself consists of a brief tutorial, plus 163 loosly organized pages explaining the more than 50 PIE commands, over 40 formatting commands, plus addresses and other information for those who like to tinker. But when you have mastered the system, you can really do about anything you want, and quite easily.

The complete PIE system actually consists of a total of 19 programs, all compatible with APPLE DOS. Some of these programs are duplicate versions in APPLEsoft and Integer, and when you configure your system, you end up with many fewer programs. Some of them allow you to access your disk and printer for your system and set your own choice of default values. The main programs are the PIE Editor and Format programs, which create and format files. These files are linked together by the Command Processor.

The PIE Editor has three modes of text entry. In the normal mode, each line will accept up to 63 characters. How, you ask, on a 40 column screen? The answer is that there are two "text windows" side by side. The primary window will accept up to 38 characters. Any more and the screen will flip to the auxiliary window. The last 12 characters of each line of the primary window are displayed, and you can enter up to 26 additional characters. In the A-mode, you can enter text and, with a little practice, "see" just how it will appear on the page when printed. This is very helpful for charts, diagrams, or tables.

The second mode is called "paragraph" mode. This is essentially the same as the entry of text with EasyWriter. When the line reaches a certain length (the "bell" column), the last word wraps around onto the next line. One difference is that with PIE, you can set when the wrap around will occur, as long as it is fewer than 38 characters. This is the usual mode when the document will be processed by the Format program, discussed below.

The third mode is called "auto-indent" mode. In this mode, when a carriage return is typed at the end of a line, the cursor will line up even with the first non-blank character in the line just ended. This mode is very handy for entering programs and texts, especially outlines and lecture notes.

In PIE, control characters command the screen. Thus, Contol-C moves the cursor down one line. Some commands have arguments, which are entered by pressing ESC, entering the argument, and then the control character. For example, to replace all instances of "principal" with "principle", you would first press ESC, the cursor would go to the bottom line of the screen, where the current status of the system is always displayed, the word "arg" would appear, and you would enter "principal". Press ESC

again, "arg" reappears, enter "principle", and then control-W and control-X.

With such commands you can move the cursor, scroll up and down through the text, goto particular lines, insert or delete characters or lines, copy or move lines or sections of text, shift sections of text to the right or left, search for a string either forward or backward through the file, insert or replace text, select entry mode, and set tabs. Capitalization is handled similarly to EasyWriter, except the right arrow is used instead of the ESC. PIE is compatible with both the Lazar and Paymar lower case chips, and instructions are given for a hardware fixes which enables the shift key, so that it functions as a regular typewriter shift key. PIE also works with the Double Vision and other 80-column boards.

Some commands use the position of the cursor to enter arguments. For example, to move a column of figures to the right, you would position the cursor to the top of the column, press ESC, move the cursor over to the new position, move it down to the end of the column, and type ctrl-I. The column will be shifted to the new position.

The manual explains each of these functions in considerable detail. I have one main complaint about the manual and that is that each function is given a symbolic label and is referred to by its label, rather than its name, or what would be most helpful, its key assignment. Thus, when the manual tells you to press the CINS key, you must remember that half a dozen pages earlier you read that CINS stands for character insert mode, and that it is assigned to ctrl-p. There was really no need for this. It can be coped with on your part by reading with the summary of commands in hand, and/or making notes in the margins. Programma proves tabs to stick on your APPLE's keyboard, but I didn't have a set.

For most standard documents, the mode of entry will be the paragraph mode, and the resulting file will be processed by the Format program. The Format program takes embedded commands or defaults similar to the EasyWriter commands and sets up the page on the basis of these commands. Again, a "." in the first column defines a command, followed by a two letter code, and in some cases a number. Thus .UL3 means to underline the next three input lines of text. In addition to the commands available with EasyWriter, you have the ability to select a literal mode, to test for the amount of space remaining on the page (so that you don't start a new paragraph or multiple choice question on the last line or two of a page), to underline, to set up to three head and foot titles (at the left, center and right of the page). On the other hand, you do not have available sub- and super-scripting, bold face printing, or variable incremental spacing.

The Command Processor acts to handle routing files to and from the disk and various ports. It is quite powerful, but may be difficult to learn to use. The commands possible are not displayed, and mistakes can be fatal. For example, the command to send a file to the disk is ">", and the command to load in a file is "<". If you want to work on a paper which is almost complete, and call the file but press the wrong arrow, you will replace your paper with whatever is currently in the memory. But again, once you have mastered the system, you can do many things. In addition to saving and calling files, you can get a word count or line count of a file, the amount of free memory remaining, send or receive a file, or part of a file, to any port, e.g. to a printer or a modem, append data to an existing file, and run the format program. You can create "shells",which function much like exec files, to automatically run a series of operations. For

example, you can create a form letter, and an address list, and a shell which puts the two together.

In conclusion, both EasyWriter and APPLE PIE have strong points to recommend them, as well as limitations. EasyWriter would seem to be the choice for those who have relatively standard word processing need, who don't want to invest in learning a more complicated system, and/or who want to use their children's homework as an excuse for one more investment in the computer. APPLE PIE would seem to be the choice for those who have more extensive or complex needs, or who just like a challenge.

PROGRAM NEEDED

The editor needs a program that will reform binary files so that Applewrite and EasyWriter files can be used with Apple PIE. If you have such a program, please call: (213)450-8880.

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HOW TO WRITE A MAILING LIST PROGRAM IN 10 MINUTES

Philip B. Ender

The other day I needed to get out a first mailing to about 50 people. There would be other mailings and I would have update the list frequently. Obviously, I needed a mailing list program and I needed it quickly. I have a mailing list program in BASIC but it is cumbersome to use, especially if you make a mistake in entering the data. I decided to write my own mailing list program to meet the following requirements:

1. Record storage in alphabetical order.
2. Up to three address lines plus phone number.
3. Easy record entry.
4. Easy record deletion.
5. Easy record updating.
6. Either address or address plus phone number printing.
7. Spend no more than ten minutes programming.

In BASIC, printing labels is easy, but entering and editing would be difficult to implement quickly. The solution: the UCSD Pascal system with its super editor. I store records in a text file with five lines per record. The data isn't checked during entry, so you have to carefully keep track of which record line you are on. Each of the fields is entered on a seperate line followed by a carriage return. When there are only two address lines, I leave a blank line before the phone line. To insert records in alphabetical order, you just move the cursor to the correct location and go into insert mode. Deleting and updating are just as easy.

With some relatively minor modificatons, this program can perform other functions of more complete mailing list programs (e.g., searching, printing only certain zip codes, etc).

```
PROGRAM MAILOUT;
CONST SP=' ';
      K=5;    (* LABEL INDENT *)
VAR
  NAME, ADD1, ADD2,
  ADD3, PHONE,
  FNAME              :STRING;
  (* NAME OF ADDRESS FILE *)
  DISK, (* ADDRESS FILE BUFFER *)
  OUT   (* PRINTER BUFFER *)
                     :INTERACTIVE;
  FONE               :BOOLEAN;
  CHOICE             :CHAR;

PROCEDURE GETINFO;
BEGIN
   WRITELN(CHR(12));
   (* CLEARS SCREEN *)
   WRITELN('  MAILOUT PROGRAM');
   WRITELN('BY PHILIP B. ENDER');
   WRITELN('   OCTOBER 1980');
   WRITELN; WRITELN;
   WRITE('ENTER NAME OF FILE: ');
   READLN(FNAME);
   WRITELN; WRITELN;
   WRITE('PRINT PHONE? (Y/N): ');
   READLN(CHOICE); WRITELN;
   IF CHOICE='Y' THEN FONE=TRUE
                 ELSE FONE=FALSE
END;

PROCEDURE INIT;
BEGIN
   RESET(DISK,FNAME);
   (* INITIALIZE ADDRESS FILE *)
   REWRITE(OUT,'PRINTER:');
   (* INITIALIZE PRINTER *)
END;

PROCEDURE READFILE;
BEGIN
   READLN(DISK,NAME);
   READLN(DISK,ADD1);
   READLN(DISK,ADD2);
   READLN(DISK,ADD3);
   READLN(DISK,PHONE)
END;

PROCEDURE PRINT;
BEGIN
   WRITELN(OUT,SP:K,NAME);
   WRITELN(OUT,SP:K,ADD1);
   WRITELN(OUT,SP:K,ADD2);
   IF LENGTH(ADD3)>0 THEN
      WRITELN(OUT,SP:K,ADD3)
                    ELSE
      WRITELN(OUT);
   (* WRITE BLANK LINE IF NO
      THIRD ADDRESS LINE       *)
   IF FONE THEN
      WRITELN(OUT,SP:K,PHONE);
   WRITELN(OUT); WRITELN(OUT)
   (* USE ENOUGH WRITELN'S TO
      SPACE DOWN TO NEXT LABEL *)
END;

BEGIN (* MAIN PROGRAM *)
   GETINFO;
   INIT;
   REPEAT
      READFILE;
      PRINT
   UNTIL EOF(DISK);
   CLOSE (DISK,LOCK)
END.
```

LISTING 1

8 MARCH MEETING

The 8 March meeting, scheduled at noon in room 2224 Young Hall at UCLA (See the map below), will focus on telecommunications. Mr Bob Steele will demonstrate Novation's new modem for the APPLE. The entire modem is on one card and fits into one slot. The Telephone Connection will also demonstrate its software at this meeting.

LISA'S INTERNAL STRUCTURE AND CUSTOMIZATION

Randy Hyde

This article describes how to modify LISA so that special purpose functions may be included. I will assume that you are using LISA V1.5D but this discussion applies to version 1.5C and to a limited extent to LISA version 2.0 as well.

Before describing how to "customize" LISA the reader must first have an understanding of the internal structure of LISA: both in terms of the internal workings of LISA and an understanding of how source code is stored in memory. An understanding of the source code format for LISA is required in order to write routines which search out labels and perform other related functions. An understanding of the internal workings of LISA is required in order to patch into LISA to make the desired changes.

Internally, LISA consists of five modules. A command interpreter reads a line of text and performs the desired task. A collection of routines perform the LIST, DELETE, MODIFY, WRITE, ETC. commands. A third section of LISA inputs a line of code, checks for proper syntax, and then tokenizes the code. The fourth section is the actual assembler which converts the source code to object code. The fifth section is an I/O executive which handles all I/O in LISA.

The most important module to discuss is the I/O module. Since without I/O nothing else can be performed. LISA's I/O drivers are an enhancement over those provided by the Apple monitor. For our purposes two things must be considered when using LISA's I/O. First, all characters are converted to normal ASCII format. That is the high order bit of each character is turned off. Second, the line input routine stores its data starting at location $300 instead of $200 as is the case with the Apple monitor routine. This is due to the fact that Apple DOS uses page two for collecting DOS commands and as such it often wiped out an input line. Lines of text in LISA can be a maximum of 127 characters long. These facts will be used when writing your own commands for the LISA command interpreter. The internal format for a LISA source statement is described in sufficient detail in the LISA documentation manual, so I will not repeat its description here.

So how does one interface to the LISA command interpreter? Well, when designing LISA I realized that there was no way that I could forsee what types of peripherals would be used with the LISA assembler. So I incorporated a user defineable function for purposes of invoking user defined printer interfaces etc. Now it just so happens that this user defineable function can be used to impliment other user defined functions as well as printer drivers. The remainder of this article is dedicated to exploring this particular aspect of LISA.

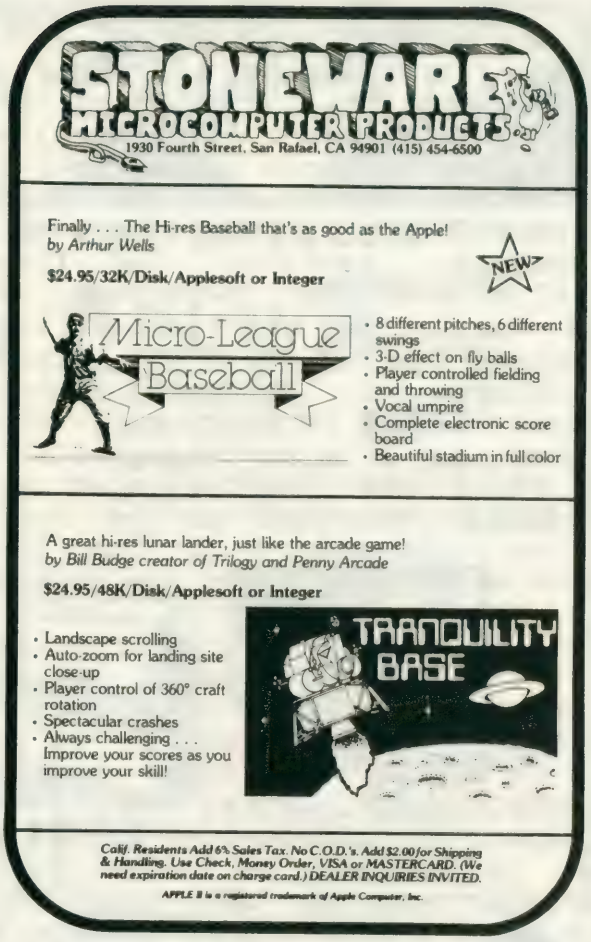
In most of the letters I've recieved asking for additional features, the two features requested the most were the ability to execute Apple monitor commands directly from the LISA command interpreter ("just like the SC-Assembler II" more than one user has mentioned- was that a threat?!!) and the ability to run machine language programs directly from LISA. Despite the large number of users requesting these additions I have not incorporated these features for two very good (I feel) reasons. In the former case, I feel it's just as easy to hit the reset key to get into the Apple monitor as it is to type some special symbol such as "$" (as with the Apple mini-assembler) in order to perform an Apple monitor command. The latter request-

allowing the user to execute a machine language program directly from LISA and then return to LISA is somewhat dangerous. Many user programs use some of the zero page locations where important pointers are kept. By allowing the user to run a program directly from LISA it allows the programmer to get lazy and not save the program onto disk before running it. Forcing the user to press reset, or use the LISA "BRK" command makes them think twice before destroying possible pointers.

Nevertheless there are several folks out there who tell me all the time "Give me the rope, if I hang myself it will be my own fault." Who can argue with that? As such the following LISA auxillary program was born. This short little program which resides from location $6F00 to $6FFF impliments the previously described functions (Apple monitor commands and the ability to run a program from LISA) as well as leaving room open for user defineable routines. Its useage revolves around the control-P user function in LISA. Briefly, a jump to subroutine is made to location $7009 whenever the first non-blank character on a line is a control-P. Normally at locaion $7009 is a jump back to the LISA command processor. By writing over the jump address with a user defined address, it is possible to direct program flow to a routine to perform additional functions. Therein lies the method of expanding LISA in a manner decided upon by the user.

The only problem remaining is where does this user defined routine go? Under normal circumstances, LISA uses up (for all practical purposes) all of the available space in a 48K machine. Once again, LISA's flexiblity allows the user to reserve some memory for his own use.

In a normal LISA system, locations $1800 through $5800 are reserved for textfile storage, locations $5800 through $6FFF are reserved for Symbol table useage and locations $7000 through $BFFF are reserved for LISA and DOS.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Locations $7022 & $7023 in LISA contian the last address available for symbol table useage. Normally, these two bytes contain the value $6FF7. By changing this to $6EF0, it is possible to reserve the memory space from location $6F00 through $6FFF for use by the user routine. Setting up this address, as well as modifying the USRJMP address in LISA is handled in lines 30 - 41 of the following routine. By simply BRUN'ing the routine which follows, not only will it be loaded into memory properly, but it will also protect itself from being walked on by LISA as well as setting up the correct jump vectors.

At line number 77 is the beginning of the routine which is called when the control-P command is detected. Now whenever the program gets to this point, the 6502 Y register contains an index into page three which points at the control-P character. By incrementing the Y register by one, the Y register will point to the next available character in the

LISA input buffer. At line 65 the subroutine BLKDEL is called. This routine increments the Y register as long as it is pointing at a blank character. This allows interleaving blanks to be typed in without causing any problems. Upon return from BLKDEL the 6502 accumulator contains the first non-blank character detected. At this point, we can compare this character with several "test" characters to determine which routine we wish to execute. In this program, any line beginning with a "$" means that the following text is to be interpreted as an Apple monitor command. If the line begins with an "R" then the program runs the code at the address (symbolic or non-symbolic) specified in the following address expression.

Beginning at line 95 is the code to handle the Apple monitor command request. First the Y index register is incremented by one so that it points to the first character past the "$". Next, this code is OR'd with $80 to convert it to a form acceptable by the Apple monitor and stored into page two. Finally the monitor command is executed by executing the "FAKEMON" code found in the Apple mini-assembler.

At line 145 the RUN command is checked for. If the first non-blank character after the control-P is an "R", then FNDBLK is used to find the next blank on the line. Once this is accomplished, the following blanks are skipped over with a call to BLKDEL. Finally (after some initial setup) GETADR is called which looks up the address on the remainder of the line. Any valid LISA address expression is allowed and symbolic references are perfectly alright. If the address is not found, then an error is reported and the user is returned to LISA. Otherwise the code at the address specified by the user is executed.

If the first non-blank character on a line is neither a "$" nor an "R" then this routine drops down to USRCMD which simply returns to LISA. If you wish to incorporate your own commands into LISA you may add them at this point. Just keep in mind that there is only 64 bytes left before $7000 gets clobbered, so you may have to re-ORG this routine.

To wrap things up, it would be wise to give a few examples of how to use this auxillary routine since this article did not provide a very good description.

TO EXECUTE AN APPLE MONITOR COMMAND FROM LISA:

SYNTAX: <control-P> $ <any Apple monitor command>

EXAMPLES:

<control-P> $800L
<control-P> $800G
<control-P> $7F8:00

TO RUN A PROGRAM FROM THE LISA COMMAND LEVEL:

SYNTAX: <control-P> R <address expression>

Note: At least one blank must appear between the "R" and the address expression.

EXAMPLES:

<control-P> R START
<control-P> R START+3
<control-P> R $800

Obviously, any user command has its own syntax.

Hopefully these examples have demonstrated how one may easily modify LISA and incorporate any special command you so desire. With a little work, it is possible to write label search routines, special driver routines, etc. The implimentation of these functions will be left to the reader.

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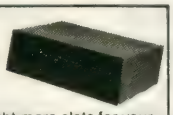

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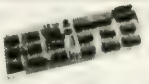

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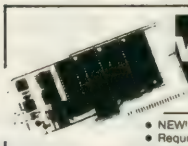

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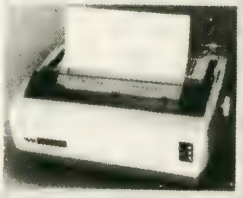

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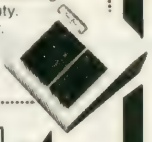

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REVIEW: PFS
Philip B. Ender

PFS, Personal Filing System, by Software Publishing (about $95) is a gem of a program. It does a lot, does it easily, and (seemingly) does it without bugs.

But it will be easier for me to tell you what PFS isn't than what it is. First off, it isn't a data base management system, although in some ways its better than any DBMS on the market. And it isn't another business program, but it could be used by every business.

PFS can be used in any situation in which a deck of index cards would be used. PFS could be used for computer club membership lists, record collections, slide catalogs, address lists, recipes, geneologies, inventories, employee records, client records, abstracts, attendence records, student records, and the list goes on. The example I've chosen to use in this article is a file of all major league baseball players from 1945 to 1980.

PFS files are made up of "forms". Each form has at least one page and may have up to 32 pages with each page equivalent to about 20 lines of data. Each page is comprised of a number of items. In our example the items are: name, position, height, weight, throws (left or right), bats (left or right), years (how many years in majors), and ended (the year retired). A PFS file, which takes up an entire disk, can hold about 1,000 pages of data.

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The first step is to boot the program. You'll only need the 16 sector PROMS). The program is written in Pascal but will run on systems without the language card. All commands use control characters and are executed instantly (you don't use the RETURN key). After booting, you see the traditional menu. And this one is easy to use. Begin by selecting the create file option.

To CREATE a file you first give it a name, say BBALL, then insert a blank disk and press CTRL-C. The disk is automatically formatted and you are presented with a blank screen. You enter the names of each item by moving the cursor to the place on the screen you want the item to occupy. After the item name you place a colon. When all the item names are entered a CTRL-C will place the screen format on the disk.

The next step is to use the ADD FORMS option. When you select this option a form is placed on the screen. You just move from item to item filling in the blanks. You may go back over the form as many times as you wish. When it's correct a CTRL-C enters it into the file and a form is again placed on the screen. When you're through adding forms an ESC returns you to the menu. Let's say you've filled out all the items for Roger Maris but want to indicate something about his homerun record. It's easy, just use a CTRL-N and your given another page (blank) for Roger's form. You can repeat this as many times as needed for each form.

When the SEARCH option is selected a blank form is placed on the screen. Let's say you put "FIRST BASE" after position and ">35" after age then press CTRL-C. One by one, PFS will display the forms of all first basemen 35 years or older. A ",,BASE,," after position would yield all forms with the word base found in the posisition item. Searches on the first item of the form, in our example name, use a hashed/sequential index access method which can find any form in about three seconds. Searches other than the first item are sequential begining with the last item entered. These searches are still very fast.

The PRINT option uses a form specification identical the search option. Thus, for example, you can print out all forms for left handed pitchers retiring after 1965. But PFS cannot print out a sorted list. The forms are printed out again in the reverse order of their entry.

The REMOVE option allows you to remove forms again in a manner similar to the search option. Thus, you can remove the forms of all those players who have only one year in the majors.

There is also COPY option which allows either the entire data file to be copy for backup or just the form format to be copied. Here comes my one and only complaint. The copy option needs two disk drives, you cannot backup a file with just a single drive.

The PFS manual deserves to be honored in this review. It's easy to use. I read it in about 20 minutes, brought up PFS and used it without any trouble the first time. The manuel is both a tutorial and a reference. I hope that other software houses will emulate this manuel.

If you rate VisiCalc a 10 then PFS certainly is a 9+. This is a program that everyone can find a use for. I already (in two days) have four files created and many more in mind. Other than VisiCalc PFS is the only program I've encountered which could sell an Apple system.

TEACHERS

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THREE REAL TIME CLOCKS

Lou P. Rivas

Since 1978, when Mountain Hardware (now Mountain Computer) brought out the APPLE CLOCK you have been able to determine and use the current date and time in your programs. In 1980, two new products entered this timely market: the California Computer Systems Calendar/Clock Module and the West Side Electronics SUPERCLOCK II. This article compares these three real time clocks.

Superficially, all three boards perform the same function - to supply the date and time. All three boards can return, as a result of an IN#n and INPUT statements, the string:

MM/DD HH;MI;SS.mmm

which is month/day hour minute second and millisecond. Each of the boards supports battery backup to run the clock whenever the APPLE II is powered off. Additionally, each board can cause an interrupt to occur at an interval of one millisecond, second, minute, or hour. Let's take a closer look at each product.

APPLE CLOCK, $280.00, including a BASIC demo diskette uses the largest board and has the most chips of the three. It is designed entirely from discrete components. The on-board battery will keep the clock running for up to 4 days. For maximum charge, the battery must be recharged continuously for 4 days (the APPLE must be left on for 4 days). During normal operation, the battery must be recharged twice as long as it is used (leave the APPLE on 16 out of every 24 hours). The AC charger included is a real necessity if you (like I) don't use your APPLE quite this much.

The board may be inserted into any slot (except slot #0). Slot #4 is recommended - a fortunate bit of serendipity since with Pascal slot #4 is probably optimal.

Two of the four dip switches on the board must be set (the other two are not used). The "top" switch allows or inhibits setting the clock. The second switch is set ON if the current year is not a leap year and OFF if it is a year. The APPLE CLOCK does not have a means to "remember" the current year.

The APPLE CLOCK can generate interrupts at regular intervals. Interrupts are enabled by software and disabled by either software or by pressing RESET. One-second intervals are pre-set, but this can be changed with a soldering iron. In addition to generating interrupts, the APPLE CLOCK fully supports the interrupt daisy chain - waiting for higher priority boards to finish interrupting before presenting an interrupt and inhibiting lower priority boards' interrupts until the APPLE CLOCK's interrupt routine finishes.

The documentation supplied with the APPLE CLOCK is well written, complete, and easy to use. An index guides the user to any desired information. Besides the manditory time setting routine, many example programs and "programming hints" are supplied. The DOS diskette supplied with the APPLE CLOCK contains many example routines including the ones listed in the manual.

One sour note - the APPLE CLOCK did not work with my Double Vision 80-column card installed. The problem appears to be a conflict in the use of the $C800 to $CFFF address space. Anyone planing to purchase both the APPLE CLOCK and an 80-column card should carefully check for conflicts.

Model 7424 Calendar/Clock Module, $125.00, uses the 5832 LSI clock/calendar chip, along with about 6 other discrete components, to perform all timing and interrupt functions. Two sockets are supplied for non-rechargable batteries that in normal use should last about a year. Although any slot from #1 to #7 may be used for installation, slot #4 is recommended to preserve APPLE CLOCK compatibility.

The 7424 uses Berg plugs (similar to, but much easier to change than, jumpers) instead of dip switches to set user options. One plug can be set to allow or inhibit setting the time and date. A second plug can be moved to one of four positions to select the interrupt rate. A third plug selects a very nice feature found only on the 7424 (and most other CCS boards). In one position, the 2708 (1K by 8 bit PROM) on the card is selected. In the other position, the 2708 may be removed and two 2112s (256 by 4 bit RAM) inserted into the sockets provided - allowing custom interface software to be down-loaded from diskette.

The PROM is logically divided into four independant 256 byte areas. The last two Berg plugs can be set to select which one of the four areas will be used by the IN#n command that reads the clock. This feature allows the 7424 to have flexible software without the necessity to use the $C800 area. One of the 2708 sections is left unprogrammed so that the user may burn in a custom interface if necessary. The first of the remaining three I/O drivers INPUTs the time string in the same format as the APPLE CLOCK (except the milliseconds are always '000' since the 5832 chip does not keep this level of resolution for display purposes) and in fact can be used with most APPLE CLOCK software except that the APPLE CLOCK "slot-finder" routine must be modified since it won't recognize the 7424. The remaining two routines require the 7424 to be interrupting at frequent intervals; one routine updates the APPLESOFT string variable TI$ with the current time and the other routine updates the time in the upper right corner of the screen (sorry, no 80-column support - the routine directly POKEs into the primary text page).

Although the 7424 can generate interrupts at the four regular intervals, the interrupt daisy chain arbitration logic is missing - the board passes through arbitration requests from boards on either side but will neither inhibit lower priority boards' interrupts until the 7424 interrupt routine finishes, nor wait for higher priority boards before presenting its own interrupt request. That this feature is missing is strange since all other CCS cards that cause interrupts do have the arbitration logic. On the other hand, the number of applications requiring interrupts is relatively small; and the number also depending on interrupt arbitration is probably miniscule - but if yours does, be aware of this possible problem. The enabling of interrupts is software controlled. Interrupts are stopped either by software or by pressing RESET.

The documentation supplied with the 7424 is well written. What is provided is easy to use, but it seems either incomplete or the emphasis is missplaced. The manual contains four chapters, with only one devoted to software. The set-up chapter clearly indicates how to set the options and install the board. The "Theory of Operation" and "Technical Information" chapters tell all that is needed about the design of the board and the operation of the 5832 chip (including how to access the year and day-of-week values). The

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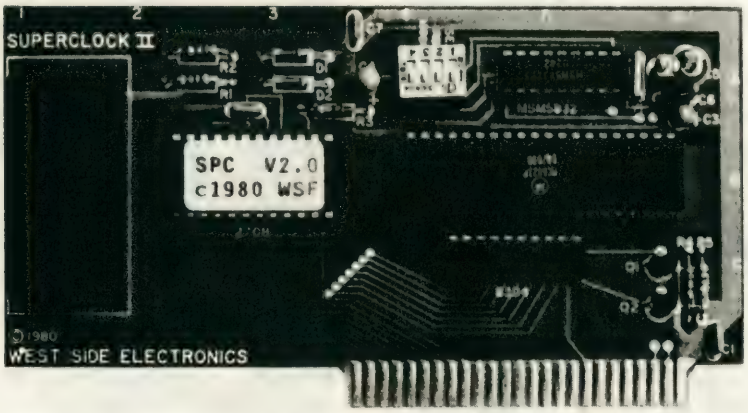

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"Software" chapter gives the listing of the BASIC clock setting routine (which must be typed in as there is no diskette supplied) and indicates how to use the three PROM routines (listings of the PROM routines are included). But it lacks examples of the use of the clock in sample programs. In fact, the sub-chapter "Writing your own Software" is directed to those writing a custom interface routine for the PROM, not for those who just want to use the date and time in a BASIC (let alone Pascal) program. (The 7424 manual fits in with the other CCS manuals - the technical details are thoroughly covered. The usage is assumed since no one would buy a board without knowing what it does and how they want to use it).

SUPERCLOCK II, $159.00, uses the 5832 and a 6821 Peripheral Interface Adapter (PIA) to perform all timing and interrupt functions. A long life, rechargable battery supplies power to the 5832 when the APPLE is turned off. The battery is recharged while the APPLE is on. Again, any slot from #1 to #7 may be used for installation but slot #4 is recommended to preserve APPLE CLOCK compatibility.

The SUPERCLOCK II has a bank of four dip switches (one of which is unused) to set user options. The first switch can be set to allow or inhibit setting the time and date. The second switch is used to adjust the seconds whenever necessary. When (briefly) set to on, the seconds counter will be reset to 00, adding one minute if the seconds were greater than 30 before the switch was set. The third switch is used to select one of two 256 byte I/O drivers from the 2708 PROM in a fashion similar to the one used by CCS in the 7424.

The APPLE CLOCK Emulation (ACE) mode program returns as a result of an IN#n a time string in the same format as the APPLE CLOCK (again, except for the milliseconds since the 5832 chip does not keep this). However, unlike the CCS 7424 which returns '000' for the milliseconds, the SUPERCLOCK II returns the value 'WYY' which is day-of-week (0 to 6 for Sunday through Saturday) and year. In addition, the appropriate code has been included in this routine so that the APPLE CLOCK "slot-finder" routine will work without any modifications. The other routine (normal mode) returns the string:

W MM/DD/YY HH;MM;SS

which is day-of-week month/day/year hour;minute;second (the ';' is used instead of ':' in all these routines to avoid upsetting APPLESOFT).

The SUPERCLOCK II can generate interrupts at the four regular intervals. The starting and stopping of interrupts is controlled by software and interrupts can also be stopped by pressing RESET as on the other two boards. However, unlike the other two boards, the rate at which the interrupts occur is also set by software. Like the CCS 7424, the SUPERCLOCK II does not incorporate the interrupt arbitration logic.

The documentation supplied with the SUPERCLOCK II is minimal. The manual explains the function of the switches, how to read the time string, and the difference between ACE and "normal" modes. Also included is a section on the Pascal support and copies of the necessary PIA documentation (for direct access to the 5832 and interrupt setting). Also included are listings of the "set clock" routine and a sample "HELLO" routine (both in both versions of BASIC) and the ACE and "normal" mode I/O drivers. The documentation covers all that is necessary but not in great detail.

Making up for the lack of documentation is a great abundance of software. As was noted above, the $159.00 is the price of the complete system which can be purchased separately as:

SUPERCLOCK II, $99.95, (with documentation);
BASIC, $9.95, Integer BASIC and APPLESOFT "time setting" and demos;

Pascal, $19.95, procedures to read clock, convert to string, and to update the filer and disk {no longer necessary to enter F(ile and D(ate each time Pascal is booted};
Interrupt, $19.95, millisecond timing routine, demos (time on screen), and tutorial;
Super-DOS, $24.95, a patched version of DOS (either 3.2.1 or 3.3) that places the date in the CATALOG (completely transparently to the user) whenever a file is SAVEd, BSAVEd, RENAMEd, or OPENed. (Clock must be in "normal" not ACE mode). The Auto-dater (for BASIC) and Pascal Filer update routines really make the SUPERCLOCK II an outstanding product.

A last comment - the January 1981 issue of Byte had adds for two new products that should be considered by someone in the market for a real time clock. On page 120 is an add by Intelligent Control Systems and on page 277 is an ad for the Thunderclock Plus. Both of these products seem to be real time clocks combined with BSR X-10 interfaces. This is a very reasonable pairing of features on a single card for anyone interested in real time control of external processes with the APPLE.

ASSISTANCE NEEDED

Can you proofread? Can you review articles submitted to APPLESAUCE? Can you type? Do you have a disk drive? Do you know how to use an APPLE wordprocessor, such as PIE, EasyWriter, or Applewriter (or would you like to learn)? The APPLESAUCE editor needs editorial assistance. If you can spend three or four hours per month doing wordprocessing work, then please call: Earl Rand (213)450-8880.

MOUNTAIN COMPUTER'S MUSIC SYSTEM

Tom Leylan

The Mountain Computer (formerly Mountain Hardware) Music System is designed for use with 48K memory and at least one disk drive. For the serious user two disk drives are a must as normal operation will require frequent exchanges between the system disk and the composition disk.

Commonly referred to as a "16-voice" board you quickly find out that it is a "16 oscillator" board. There are 6 preprogrammed instruments available bass, organ, gong, brass, string, and woodwind. they range from the bass requiring only one oscillator to the string and woodwinds which require three oscillators per voice.

As you can see when you write a piece using multi-oscillator instruments you will be limited to fewer voices.

There is alot of control afforded the user. Creation of customized waveforms and sound envelopes allow you to create a limitless number of special sound effects. Their are separate volume controls for each oscillator, as well as an overall volume control. Two output channels are provided which can connect directly to most stereo amplifiers. The Music System can also drive a pair headphones without an external amplifier.

This synthesizer is a two-board system which is simple to install. The only restriction is that the boards must be placed in consecutive slots.

The system disk boots to the main menu where you are presented with three options. they are:

(1) MUSIC PLAYER

(2) MUSIC EDITOR

(3) MUSIC MERGER

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INTEGER or APPLESOFT DOS 3.3 and DOS 3.2
California residents add $1.50 sales tax.

Unfortunately this is the only position in which you have access to DOS and subsequently the ONLY place that you can Catalog a disk.

Entering The Music Player, we are prompted with the words "INPUT COMPOSITION NAME:". If you have only one disk drive you will have to insert your composition disk and type in your selection. (Remember...If you don't know the name of the pieces on the disk you will have to replace the system disk, exit the Music Player and return to the main menu where we can catalog the disk. then we have to re-enter the Music Player, re-insert the composition disk and then ... finally... enter the name of the compostion. There should be an easier way.

You have loaded the song and are now provided with the opportunity to alter the choice of instruments to play and/or the stereo format.

Before you can listen to it we will have to again insert the system disk and press return.

In a few seconds we hear ... music.

This is where the Music System redeems itself. The sound is very good and has a very rich and full tone.

A small complaint, is that there are only three demo compositions included with the package. Considering the relative ease and low additional cost of including extra pieces. I would think that it would serve to encourage the new user and stimulate future sales.

When the composition has ended you are returned to the "ENTER .. NAME" prompt. As far as I can see, if you want to play the same melody again you will have to go through the loading process again.

In the editor you are presented with only a single staff line (instead of the grand staff). You assign this staff either a bass or treble clef.

Additionally, only the last four notes entered are displayed on the staff at a time. This can make following the flow of the music a little difficult.

There are four entry menus:

(1) MAIN COMMANDS MENU

(2) SIGNATURE COMMANDS MENU

(2) NOTE MODIFIER MENU

(3) SOUND CONTROL MENU

In an attempt to reduce most entries to a single stroke, Mountain Computer has created a menu entry box for almost every situation. While this may seem like a good idea it does create large menus. There are separate boxes for each key signature, 1#, 2#, etc. and each time signature, 4/4, 2/4, etc.. It is just as easy to press the appropriate numerical keys and then one box for sharps and another for flats. The same approach can be used for entering time signatures which would reduce what takes 23 boxes to about 3 boxes. This approach would probably allow combining some of the menus and ultimately reduce the constant switching between them.

To hear the piece that you have entered you must first save your composition to the disk. Insert the system disk, exit the music editor, and return to the main menu. Then you have to enter the music player, re-insert the composition disk, re-load the melody that you just saved, re-insert the system disk and press return.

Obviously this is a two-drive program.

The Mountain Computer Music System is impressively packaged in a large 3-ring, full-color binder containing a comprehensive manual and the music system diskette.

With a retail price of about $545, a potential buyer would do well to have a detailed demonstration of the system prior to buying it.

After alot of consideration I am hard pressed to come up with a good reason for buying this system.

Since all compositions created on the system require the boards for playback relatively few Apple owners would be able to hear anything that you have composed.

If you are serious about producing synthesized music for recording or commercial reasons I believe that you will find the system limiting and should consider looking into one of the far more suitable music synthesizers on the market.

Which leaves us with the group that is looking for entertainment and perhaps the challenge of working in a new dimension on their Apple Computer.

The hardware is such that with work and research you will be rewarded with music and sounds that will most likely be unequaled by comparably priced music boards.

But take the time to check out the system before you buy.

TRICKY PROGRAMERS

Have you figured out how to do the impossible? Or cut run time down from minutes to seconds? Share your algorithm and programs with the other readers of APPLESAUCE! Write a note or article for APPLESAUCE!

DISASSEMBLER PRINT ROUTINE

Lee Reynolds

If you have a standard APPLE II, you can use the monitor's "L" command to disassemble 20 insturctions. But most programs both are longer than 20 instructions and do not fit multiples of 20. Thus you have to keep pressing "L" and end up disassembling more code than you really want.

This program duplicates the monitor's "L" function, except that it is no longer restricted to 20 instructions. You give the routine the beginning and ending addresses of the memory you want disassembled, and it does the rest. Both addresses must be entered in the normal (backward) notion in HEX locations $3C & $3D (60-61 decimal) for the beginning location and $3E and $3f for the ending.

Suppose you had loaded the routine from BASIC and you want to disassemble some code from ADDR1 TO ADDR2. you would:

```
>POKE 60,ADDR1 MOD 256
>POKE 61,ADDR1/256
>POKE 62,ADDR2 MOD 256
>POKE 63,ADDR2/256
>CALL 864
```

Note that if the program you're disassembling ends with a one-byte instruction(e.g., RTS), then you must add 1 to ADDR2. This is because the branch to label LIST in this routine is a branch-on-less-than.

The routine is now in locations $360 to $377, but you can relocate it anywhere more convenient to you.

Below, you have the listing of the routine as well as a disassembled listing of it using the routine itself.

Lee Reynolds 801 NE 18 Ct #109 Ft.Lauderdale, Fl 33305 tel: (305) 764-1247

```
1040          .OR $360
1050 A1PC     .EQ $FE75
1060 INSDSP   .EQ $F8D0
1070 PCADJ    .EQ $F953
1080 PCL      .EQ $3A
1090 PCH      .EQ $3B
1100 A2L      .EQ $3E
1110 A2H      .EQ $3F
1120          LDX #1
1130          JSR A1PC
1140 LIST     JSR INSDSP
1150          JSR PCADJ
1160          STA PCL
1170          STY PCH
1180          CMP A2L
1190          LDA PCH
1200          SBC A2H
1210          BCC LIST
1220          RTS
1230          .EN
```

```
>BLOAD DISASSEMBLER.OBJ
>POKE 60,96
>POKE 61,3
>POKE 62,120
>POKE 63,3
>CALL 864
0360-   A2 01       LDX   #$01
0362-   20 75 FE    JSR   $FE75
0365-   20 D0 F8    JSR   $F8D0
0368-   20 53 F9    JSR   $F953
036B-   85 3A       STA   $3A
036D-   84 3B       STY   $3B
036F-   C5 3E       CMP   $3E
0371-   A5 3B       LDA   $3B
0373-   E5 3F       SBC   $3F
0375-   90 EE       BCC   $0365
0377-   60          RTS
```

CALLING ALL INVENTORS!

Have you invented some gadget for the APPLE? Does it do something through the game I/O port? For example, can you monitor your physical state with your APPLE? Bio- feedback? Can you check the speed of your camera's shutter? Can you plot a voiceprint on your monitor?

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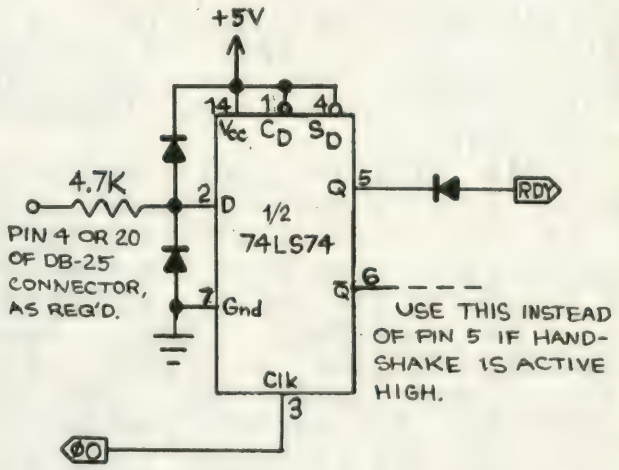
COPING WITH APPLE'S HIGH SPEED SERIAL CARD PART I

Jeff Mazur

Last spring, I wrote an article on adding handshaking to the APPLE High Speed Serial Card (Kilobaud/Microcomputing, June 1980, pp. 136-138). Several people contacted me about the hardware modification that I descrived, and since then I've come across some new information I'd like to share.

The circuit below is basically the same as presented in the original article. The chip has been changed to a 74LS74 (edge-triggered D-latch) for more reliable operation. The theory behind the modification is still the same - the busy signal from the printer is used to pull down the READY line on the APPLE II bus and 6502 CPU (for a complete description and construction details, see the above article).

One important requirement of this approach is that the printer's handshaking line must be 'synchronous' with the data stream. That is, it should change just after receiving the last character which fills the buffer. Most serial printers fulfill this requirement, but some line printers do not. For example, the Heath WH-14 line printer has an input buffer under control of its internal UART and microproccessor. However, the busy line from the printer is not simply related to the status of the buffer but is also derived from the actual printing operation. Thus, for example, when the printer is performing a carriage return, (and therefore not printing), the busy line is brought high (it also has an inverted handshaking logic). Since it does not begin printing until a carriage return is received and also because the printing speed varies with many factors including print-head temperature, this handshaking line is totally 'asynchronous'. Because the serial card does its parallel to serial conversion in firmware, a handshaking system like this is disasterous! If we halt the CPU while it is in the middle of sending a character (which would happen 90% of the time in this case), then the receiving UART will not be able to interpret this character correctly.



With a printer like the WH-14, the only other alternative is to use a software handshake as described by APPLE in the International Apple Core APNOTE E3. This modification has also been described in several other APPLE magazines, and they all assume you have a disk. It is possible to use this approach with non-disk systems by changing the "JMP $03EA" line in the patch to a "JMP $E88A" (Integer) or "JMP $D823" (APPLESOFT). In the IAC's June 1980 version of the patch, this instruction is located at $03B2.

Finally, there is one other solution that is now available. APPLE has come out with a new P8 PROM for the serial card which places this software handshake in firmware. Price tag on the PROM is $40 and I have been informed that this may still not work with all printers.

End of Part 1

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DOS 3.3 PATCH

Lou P. Rivas

Those of you with DOS 3.3 and a Language Card have probably noticed that the Language Card is loaded whenever you boot DOS, even if you booted by PR#n without turning off the power. If you have been wondering if there was a way to make DOS "remember" that the Language Card is already loaded - to avoid this needless delay, then read on.

One of the features of the new APPLE DOS 3.3 is that the appropriate "other" BASIC is loaded, while booting, if an APPLE Language Card (or Andromeda or Microsoft's 16K card), is installed in Slot 0 of your system. The "HELLO" program supplied on the 3.3 disk pokes a small, assembly language subroutine at $300 that checks the existance of the Language Card. If the return code from this subroutine indicates that it is possible and necessary, the "HELLO" program will BLOAD the binary file containing the BASIC into the Language Card then "write-protect" the Language Card. It is defined to be necessary to load the Language Card when the BASIC being used to run the "HELLO" program is in ROM.

For the APPLE II+ (with Applesoft in ROM), HELLO is the "HELLO" program which BLOADs INTBASIC if necessary. For the APPLE II (with Integer BASIC in ROM), APPLESOFT is the "HELLO" program and FPBASIC will be loaded. For those new to the ways of DOS, this magic works since the APPLE II+ will directly RUN the program named "HELLO". For the older APPLE II, when DOS detects that the Applesoft program "HELLO" is to be run, and that there is no Applesoft, the DOS first RUNs the file APPLESOFT (expecting it to be the Applesoft Interpretor).

Another "feature" of DOS 3.3 is that it destroys the contents - as far as the INT and FP commands

Dos ist goot,ya?

are concerned - of the Language Card. These two features are independant - each boot first has DOS zonking the Language Card contents and then the "HELLO" program BLOADing the Language Card. Note that the "HELLO" program, running with BASIC in ROM, will always load the Language Card BASIC, and with BASIC on the Language Card, will never re-load the Language Card.

Since booting DOS with PR#n or ^Pn does not normally alter the Language Card contents, except for the second "feature" above, it might be nice to delete this addition to DOS. For the APPLE II, the "HELLO" program would be APPLESOFT on power-up boot (since the DOS would not find Applesoft in ROM) which would load the Language Card; all subsequent PR#n boots would RUN HELLO (since Applesoft would be found on the Language Card) and therefore not reload the Language Card. Unfortunately, the APPLE II+ will always RUN HELLO and therefore reload the Language Card.

The following patches come to us from Don Worth of Valencia, Ca.

A 48K memory size is assumed (anyone having a smaller size - tell us how you got the Language Card to work on your machine - we would like to know).

Before INITing a slave disk, alter DOS as follows:

```
>CALL -151
          <-- to enter the monitor
```

```
*BFD3: EA EA EA
        <-- to remove the second
            feature
*3D0G
        <-- to return to BASIC
>INIT HELLO,,
        <-- to INIT the slave
            disk
```

To create a MASTER disk, proceed as follows:

```
>BLOAD MASTER CREATE
        <-- to load it
>CALL -151
        <-- to enter the monitor
*080D:4C
        <-- to escape after
            loading DOS
*800G
        <-- to load DOS image
            into RAM
*1BD3:EA EA EA
        <-- to remove the second
            feature
*82DG
        <-- to complete MASTER
            CREATE
```

A LETTER FROM DAN DUBOIS

Dear Earl,

This is an addendum to Lou Rivas' DOS 3.3 patch.

Here are two alternate fixes. One is temporary: restore memory location $E000 to its original value before DOS 3.3 clobbered it. (This fix will restore the BASIC interpreter, and will last until the next boot.)

The other fix offers total relief: use DISK ZAP (or equivalent) to modify the version of DOS stored on each diskette. This prevents DOS from clobbering $E000 (and the BASIC interpreter) when re-booting from a ZAPPED diskette.

The permanent fix is also courtesy of Don Worth who suggested it; and Peter Lechner of Computerland in Lawndale who sleuthed the disk location to be modified. This patch to the DOS image on disk is essentially identical to the core image DOS patch described by Lou Rivas: both methods no-op the same instruction (STA $E000). Here is the disk patch: change the contents of track 0 sector 9, bytes $D3-D5, from hex "8D 00 D0" (STA $E000) to hex "EA EA EA" (NOP NOP NOP).

The temporary fix is useful when the old DOS 3.3 has just clobbered $E000, but you want to use the "other" BASIC right away. This is when DOS displays "LANGUAGE NOT AVAILABLE" in response to >FP (or INT for the Apple II+). You must store "4C" in $E000 to restore Applesoft; or "$20" in $E000 to restore Integer Basic. To do this, you must use the "soft" switches for RAM select/deselect and write enable/write protect. These are described in Appendix D, page 36 of the APPLE LANGUAGE SYSTEM INSTALLATION AND OPERATING MANUAL. Here is the sequence to restore Applesoft for an Apple II:

```
>CALL-151

*E000 (should display "E000- 20")

*C083 C083 E000 (shows "E000- 20")

*E000:4C N E000 (shows "E000- 4C")

*C082 E000 (displays "E000- 20")

*CTRL-C  (return to ROM Basic)

>FP

        (Now you're in APPLESOFT)
```

To restore Integer Basic for an Apple II+, store hex $20 (instead of $4C) in $E000.

Sincerely yours,

Dan

DOCTORS

Have you used your APPLE in you medical work? How? What were the results? What would you advise other doctors to do? Do you have something you can share? write up a short article for APPLESAUCE! Call: (213)450-8880.

A LETTER FROM YOUR EDITOR

I would like to thank the many authors and reviewers who helped with this issue of APPLESAUCE. The list of reviewers and other assistants includes Phil Ender, Bill Fisher, Norm Haas, Bill Ho, Bob Male, and Lou Rivas.

I would also like to thank the following companies for supplying software and hardware:
California Computer Systems for its lending a Calendar/Clock Module,
The Computer Store (Santa Monica) for lending a Smarterm 80-column board,
Information Unlimited Software for its EasyWriter,
Programma International for Apple PIE, a modem, and other assistance,
Software Publishing Co. for its PFS,
Westside Electronics for its Superclock-II,

The Original Apple Corps does not sponsor or recommend any product. But as the editor, however, I recommend that authors use Programma's Apple PIE. I recommend PIE because it has features which make it easy for me to prepare manuscripts for photo-offset printing.

Authors should remember that APPLESAUCE prints two columns of 35 characters each. Thus, listings of programs must be within margins 1...35. And words of texts should not be hyphenated at the ends of lines. Also, make sure that the text can be viewed without an 80-column board.

If you use PIE and would like to see the formatted text, then in the FORMAT program, press RETURN without P (for PRINT). Then start and stop the listing by pressing the spacebar.

Earl

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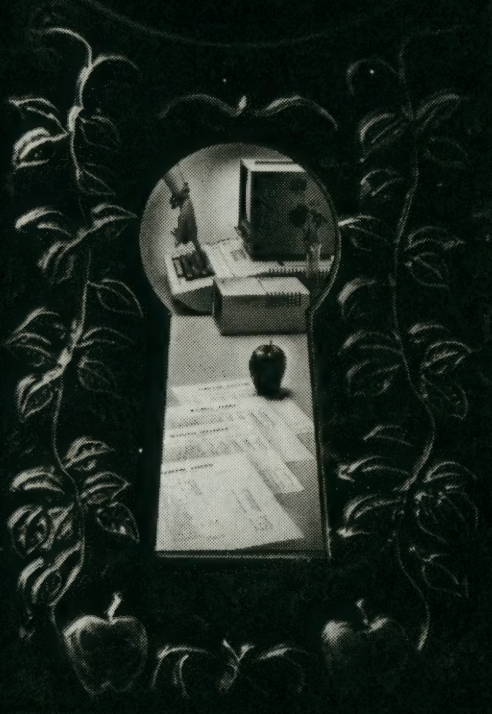

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